Print

CAMEO Chemicals

Chemical Datasheet

CHLORPYRIFOS

Chemical Identifiers

CAS Number	UN/NA Number	DOT Hazard Label	CHRIS Code
2921-88-2	2783	Poison	DUR

NFPA 704

data unavailable

General Description

Chlorpyrifos is a white crystalline or irregularly flaked solid. It has a very faint mercaptan-type odor. It is not soluble in water. It can cause slight irritation to the eye and skin.

Hazards

Reactivity Alerts

none

Air & Water Reactions

Insoluble in water. It reacts with water and most reactive hydrogen compounds. The rate of hydrolysis in water increases with pH, with temperature and with the presence of copper and possibly other metals that can form chelates. (NTP, 1992)

Fire Hazard

Excerpt from GUIDE 152 [Substances - Toxic (Combustible)]:

Combustible material: may burn but does not ignite readily. Containers may explode when heated. Runoff may pollute waterways. Substance may be transported in a molten form. (ERG, 2012)

Health Hazard

Symptoms of organophosphate insecticide poisoning: cholinesterase inhibition, headache, fatiguedizziness, blurred vision, weakness, nausea, cramps, diarrhea, chest discomfort, sweating, miosis, tearing, salivation, vomiting, cyanosis, papilledema, and muscle twitching. In advanced cases convulsions, coma, loss of reflexes, and loss of sphincter control may occur. EYES: Can produce mild to moderate eye irritation and transient corneal injury. SKIN: Undiluted liquid products can cause skin irritation. Prolonged or repeated exposure may cause superficial burns. (USCG, 1999)

9430858

Reactivity Profile

CHLORPYRIFOS is sensitive to heat and is decomposed by moisture. This chemical is hydrolyzed by strong alkalis. It is corrosive to copper and brass. It is also corrosive to copper alloys. It reacts with water and most reactive hydrogen compounds. The rate of hydrolysis in water increases with pH, with temperature and with the presence of copper and possibly other metals that can form chelates. (NTP, 1992)

Belongs to the Following Reactive Group(s)

- Amines, Phosphines, and Pyridines
- Esters, Sulfate Esters, Phosphate Esters, Thiophosphate Esters, and Borate Esters
- Aryl Halides

Potentially Incompatible Absorbents

Use caution: Liquids with this reactive group classification have been known to react with the absorbent listed below.

- Mineral-Based & Clay-Based Absorbents

Response Recommendations

Isolation and Evacuation

Excerpt from GUIDE 152 [Substances - Toxic (Combustible)]:

As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

SPILL: Increase, in the downwind direction, as necessary, the isolation distance shown above.

FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2012)

Firefighting

Excerpt from GUIDE 152 [Substances - Toxic (Combustible)]:

SMALL FIRE: Dry chemical, CO2 or water spray.

LARGE FIRE: Water spray, fog or regular foam. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. Use water spray or fog; do not use straight streams.

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. (ERG, 2012)

Non-Fire Response

Excerpt from GUIDE 152 [Substances - Toxic (Combustible)]:

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch

damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Cover with plastic sheet to prevent spreading. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. DO NOT GET WATER INSIDE CONTAINERS. (ERG, 2012)

Protective Clothing

Skin: Wear appropriate personal protective clothing to prevent skin contact.

Eyes: Wear appropriate eye protection to prevent eye contact.

Wash skin: The worker should immediately wash the skin when it becomes contaminated.

Remove: Work clothing that becomes wet or significantly contaminated should be removed and replaced.

Change: Workers whose clothing may have become contaminated should change into uncontaminated clothing before leaving the work premise. (NIOSH, 2003)

DuPont Tychem® Suit Fabrics

No information available.

First Aid

EYES: First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

SKIN: IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. If symptoms such as redness or irritation develop, IMMEDIATELY call a physician and be prepared to transport the victim to a hospital for treatment.

INHALATION: IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. If symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop, call a physician and be prepared to transport the victim to a hospital. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Protective Clothing.

INGESTION: If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. Be prepared to transport the victim to a hospital if advised by a physician. If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. IMMEDIATELY transport the victim to a hospital. (NTP, 1992)

Physical Properties

Chemical Formula: $C_9H_{11}Cl_3NO_3PS$

Flash Point: data unavailable

Lower Explosive Limit (LEL): data unavailable

Upper Explosive Limit (UEL): data unavailable

Autoignition Temperature: data unavailable

Melting Point: 108 to 110 ° F (NTP, 1992)

Vapor Pressure: 1.87e-05 mm Hg at 77.0 ° F (NTP, 1992)

Vapor Density (Relative to Air): 12.09 (calculated) (NTP, 1992)

Specific Gravity: 1.4 (Liquid at 110° F) (NIOSH, 2003)

Boiling Point: 320 ° F at 760.0 mm Hg (Decomposes) (NIOSH, 2003)

Molecular Weight: 350.59 (NTP, 1992)

Water Solubility: approximately 2 mg/L at 77° F (NTP, 1992)

IDLH: data unavailable

AEGLs (Acute Exposure Guideline Levels)

No AEGL information available.

ERPGs (Emergency Response Planning Guidelines)

No ERPG information available.

PACs (Protective Action Criteria)

Chemical	PAC-1	PAC-2	PAC-3
Chlorpyrifos; (Dursban) (2921-88-2)	0.6 mg/m3	1.1 mg/m3	8.8 mg/m3

(SCAPA, 2012)

Regulatory Information

Regulatory Name	CAS Number/ 313 Category Code	EPCRA 302 EHS TPQ	EPCRA 304 EHS RQ	CERCLA RQ	EPCRA 313 TRI	RCRA Code	CAA 112 (r) RMP TQ
Chlorpyrifos	2921-88-2			1			

(EPA List of Lists, 2012)

Alternate Chemical Names

- BONIDEL
- BRODAN
- CHLOROPYRIFOS
- CHLOROPYRIPHOS
- CHLORPYRIFOS
- CHLORPYRIFOS-ETHYL
- CHLORPYRIPHOS
- CHLORPYRIPHOS-ETHYL
- COROBAN
- DANUSBAN
- DETMOL U.A.
- DHANUSBAN
- DOWCO 179
- DURMET
- DURSBAN

- DURSBAN 10CR
- DURSBAN 4E
- DURSBAN F
- DURSBAN R
- DURSBAN TC
- DURSBAN®
- ENT 27,311
- ENT 27311
- EQUITY
- ERADEX
- ETHION, DRY
- ETHYL CHLORPYRIPHOS
- KILLMASTER
- LENTREK
- LOCK-ON
- LORSBAN
- LORSBAN 50SL
- O,O-DIETHYL O-(3,5,6-TRICHLORO-2-PYRIDINYL)PHOSPHOROTHIOIC ACID ESTER
- O,O-DIETHYL O-(3,5,6-TRICHLORO-2-PYRIDYL) THIOPHOSPHATE
- O,O-DIETHYL O-(3,5,6-TRICHLORO-2-PYRIDYL)PHOSPHOROTHIOIC ACID ESTER
- O,O-DIETHYL O-3,5,6-TRICHLORO-2-PYRIDYL PHOSPHOROTHIOATE
- OMS-0971
- PHOSPHOROTHIOIC ACID, O,O-DIETHYL O-(3,5,6-TRICHLORO-2-PYRIDINYL)ESTER
- PHOSPHOROTHIOIC ACID, O,O-DIETHYL O-(3,5,6-TRICHLORO-2-PYRIDYL) ESTER
- PHOSPHOROTHIOIC ACID, O,O-DIETHYL O-(3,5,6-TRICHLORO-2-PYRIDYL)ESTER
- 2-PYRIDINOL, 3,5,6-TRICHLORO-, O-ESTER WITH O,O-DIETHYL PHOSPHOROTHIOATE
- PYRINEX
- RADAR
- RADAR (FUNGICIDE)
- SPANNIT
- STIPEND
- SUSCON
- SUSCON BLUE
- SUSCON GREEN
- TERIAL
- TERIAL 40L
- 3,5,6-TRICHLORO-2-PYRIDINOL O-ESTER WITH O,O-DIETHYL PHOSPHOROTHIOATE
- XRM 429
- XRM 5160